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10/664,628	09/19/2003	Kenji Inoue	KIN90USA	5070

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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/664,628
Filing Date: September 19, 2003
Appellant(s): INOUE, KENJI

George Smith
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/8/2006 appealing from the Office action mailed 3/9/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,383,339	GSTREIN	5-2002
6,605,188	HAGFORS	8-2003
4,500,588	LUNDSTROM	2-1985
4,529,643	LUNDSTROM	7-1985
5,849,395	VALENTINE	12-1998
5,298,124	EKLUND	3-1994

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,383,339 to Gstrein in view of USPN 6,605,188 to Hagfors in view of any one of USPN 4,500,588 to Lundstrom or USPN 4,529,643 to Lundstrom.

Regarding claims 1 and 5, Gstrein discloses a wet paper web transfer belt comprising a base body, a wet paper web side layer having a wet paper web-contacting surface, and a machine side layer, said belt having fibers, parts of which are embedded and protrude from said web-contacting surface (see entire document including column 1, lines 39-67 and Figures 1-4).

Gstrein is silent with regards to specific fiber lengths, therefore, it would have been obvious to look to the prior art for conventional fiber lengths. Hagfors provides this conventional teaching showing that it is known in the papermaking belt art to use fibers with an average protruding height of between 0.001 to 0.03 mm (column 4, lines 17-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the fibers protrude between 0.001 to 0.03 mm motivated by the expectation of successfully practicing the invention of Gstrein.

Gstrein discloses that a variety of polymers may be used to create the polymer layer (column 2, lines 4-6), but Gstrein does not specifically mention the use of an elastic polymer. The Lundstrom references ('588 and '643) each disclose that it is known in the papermaking art to use an elastomeric polymer material because some applications require a higher compressibility (see entire documents including column 3, lines 17-25 of '643 and column 3, lines 57-65 of '588). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer layer from any suitable polymeric material, such as an elastic polymer, because some applications require a higher compressibility and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability.

Regarding claim 5, Gstrein discloses that the protruding parts of the fibers are formed by processing (needling) the surface of the fabric (column 4, lines 57-60).

3. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,383,339 to Gstrein in view of USPN 6,605,188 to Hagfors in view of any one of USPN 4,500,588 to Lundstrom or USPN 4,529,643 to Lundstrom as applied to claims 1 and 5 above, and further in view of USPN 5,849,395 to Valentine et al. (hereinafter referred to as Valentine).

Regarding claims 3 and 7, Gstrein is silent with regards to specific fiber densities, therefore, it would have been necessary and thus obvious to look to the prior art for conventional fiber densities. Valentine provides this conventional teaching showing that it is known in the papermaking art to use high fiber densities to reduce brittleness (see entire document including the paragraph bridging columns 1 and 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the fiber density high, such as

from 10 to 500,000 fibers/cm^2, motivated by the expectation of successfully practicing the invention of Gstrein and/or to reduce brittleness.

Regarding claim 7, Gstrein discloses that the protruding parts of the fibers are formed by processing (needling) the surface of the fabric (column 4, lines 57-60).

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,605,188 to Hagfors in view of any one of USPN 4,500,588 to Lundstrom or USPN 4,529,643 to Lundstrom.

Regarding claims 1 and 5, Hagfors discloses a wet paper web transfer belt comprising a base body, a wet paper web side layer having a wet paper web-contacting surface, and a machine side layer, said belt having fibers, parts of which are embedded and protrude from said web-contacting surface (see entire document including column 2, lines 23-53 and Figure 1). Hagfors discloses that the fibers may have an average protruding height of between 0.001 to 0.03 mm (column 4, lines 17-40).

In the event that it is shown that Hagfors does not teach or suggest the claimed protruding fiber length, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the protruding fiber length, such as from 0.01 to 3 mm, because it is understood by one of ordinary skill in the art that the protruding material affects the ability of the transfer belt to detach a fiber web and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Hagfors discloses that a variety of polymers may be used to create the polymer layer, including polyurethane (column 3, lines 21-25), but Hagfors does not specifically mention the use of an elastic polymer. The Lundstrom references ('588 and '643) each disclose that it is

known in the papermaking art to use an elastomeric polymer material because some applications require a higher compressibility (see entire documents including column 3, lines 17-25 of '643 and column 3, lines 57-65 of '588). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer layer from any suitable polymeric material, such as an elastic polymer, because some applications require a higher compressibility and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability.

Regarding claim 5, Hagfors discloses that the protruding parts of the fibers are formed by processing (grounding) the surface of the fabric (column 1, lines 57-67).

5. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,605,188 to Hagfors in view of any one of USPN 4,500,588 to Lundstrom or USPN 4,529,643 to Lundstrom as applied to claims 1 and 5 above, and further in view of USPN 5,849,395 to Valentine.

Regarding claims 3 and 7, Hagfors is silent with regards to specific fiber densities, therefore, it would have been necessary and thus obvious to look to the prior art for conventional fiber densities. Valentine provides this conventional teaching showing that it is known in the papermaking art to use high fiber densities to reduce brittleness (see entire document including the paragraph bridging columns 1 and 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the fiber density high, such as from 10 to 500,000 fibers/cm^2, motivated by the expectation of successfully practicing the invention of Hagfors and/or to reduce brittleness.

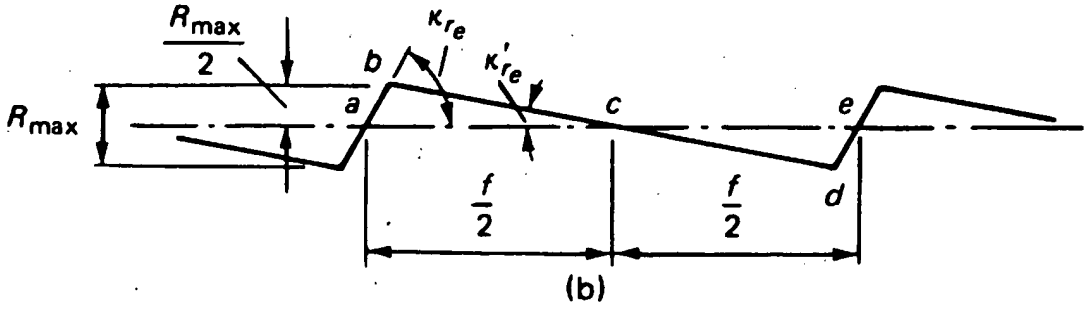
Regarding claim 7, Hagfors discloses that the protruding parts of the fibers are formed by processing (grounding) the surface of the fabric (column 1, lines 57-67).

(10) Response to Argument

The appellant asserts that Hagfors does not teach or suggest the claimed protruding fiber length because the Ra value says nothing about the average length of any protruding parts of the fibers. The examiner respectfully disagrees. Hagfors clearly discloses that the polymer layer surface is ground to a suitable roughness thereby exposing fiber portions (column 2, lines 47-49). Hagfors discloses that said fiber portions are responsible for the disclosed roughness (column 1, lines 64-67). Hagfors discloses that an average surface roughness (Ra) of between 1 to 30 μm (0.001 to 0.03 mm) is advantageous (column 4, lines 25-27).

The appellant asserts the Ra value is related to the roughness of the abrasive agent and the fiber finesses, rather than the length of the protruding fiber portions, simply because Hagfors discloses that the surface roughness can be controlled by the roughness of the abrasive agent and the degree of fiber fineness (column 1, line 67 through column 2, line 2). The examiner respectfully disagrees. Hagfors is simply teaching that the roughness of the abrasive agent and/or the degree of fiber fineness effect the average length of the protruding parts of the surface fibers. For example, the smaller the fiber fineness (weaker fibers) and/or the greater the abrasive roughness (stronger the abrasive) the smaller the protruding fiber length because the fibers would be more prone to abrasive eroding.

As is understood by one of ordinary skill in the art, the average surface roughness is a measure of the average height variation in a surface. More specifically, the Ra measure is one of the most effective surface roughness measures commonly adopted in general engineering practice. It gives a good general description of the height variations in a surface. To determine the Ra value a mean line is first found that is parallel to the general surface direction and divides the surface in such a way that the sum of the areas formed above the line is equal to the sum of the areas formed below the line. The Ra value is given by the sum of the absolute values of all the areas above and below the mean line divided by the sampling length. Therefore, the surface roughness value is given by: Ra=(|area abc|+|area cde|)/f.



As is also understood by one of ordinary skill in the art, the average surface roughness (Ra) is related to the maximum roughness (Rmax) by: Ra = Rmax/4. Therefore, by disclosing that the average surface roughness (Ra) is between 1 to 30 μm, Hagfors discloses that the maximum roughness (Rmax) is between 4 to 120 μm. As illustrated above, the maximum roughness (Rmax) is the average protruding height. Therefore, Hagfors discloses that the average height of the protruding parts of said fibers is between 4 to 120 μm (0.004 to 0.12 mm).

It is quite clear that the range disclosed by Hagfors (0.004 to 0.12 mm) overlaps the claimed range (0.01 to 3 mm) with sufficient specificity. Even assuming *arguendo*, that Hagfors does not teach or suggest the claimed protruding fiber length, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the protruding fiber length, such as from 0.01 to 3 mm, because it is understood by one of ordinary skill in the art that the protruding material affects the ability of the transfer belt to detach a fiber web and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In response, the appellant asserts that there is no teaching or suggestion that varying the lengths of the fibers affects the ability of a transfer belt to detach a fiber web. The examiner respectfully disagrees. USPN 5,298,124 to Eklund et al. was specifically cited in the office action mailed on 3/9/2006 to show (in addition to the teachings of Hagfors) that it is known in the transfer belt art to vary the surface roughness of a transfer belt to in order to break up the strength of the water film (see entire document including column 8, lines 29-61).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

atp

10/23/06

ANDREW PIZIALI
PRIMARY EXAMINER

Conferees:

Terrel Morris

Jennifer Kolb-Michener

JENNIFER MICHENER
QUALITY ASSURANCE SPECIALIST